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ANTIBIOTICS

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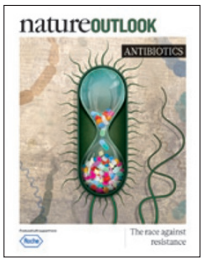

Cover art: Nik Spencer

In the United States in the 1960s, a visit to the doctor usually entailed getting a shot of penicillin. It seemed that anything from hangnails to headaches called for an antibiotic "just in case". At the same time, most cows and pigs on even small farms received antibiotics regularly whether they were needed or not. With such carefree prescribing, we cannot be surprised that we face big problems with antibiotic resistance today. It will take the combined efforts of academic researchers, pharmaceutical scientists and government officials, as well as the public, to fight the growing danger of untreatable bacterial diseases.

Promising approaches are being developed, however. For instance, industry and government are forming partnerships to develop new antibiotics (page S4), and researchers are seeking a better understanding of the mechanisms that drive bacterial resistance (S6). Sometimes — as with phage therapy (S9) — moving forwards means returning to yesterday's treatments. Other scientists are exploring entirely new sources of antibiotics, from building nano-size structures to trawling the oceans for useful organisms (S10). Natural products collected through such searches can be chemically modified to attack a specific target (S13).

Addressing the growing health-care challenge will require more than new drugs, however. Advanced diagnostics will be crucial, from assessing environmental sources of potential infections to reducing the waste of antibiotics (S14). And governments and social organizations around the world are working to reduce the overuse of antibiotics in agriculture and medicine (S16). All this means that future generations will have a very different experience of antibiotics.

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Mike May
Contributing Editor

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